REMARKS

Summary of the Office Action

Claims 13-15, 17, 24-28, 34-38 and 44-55 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0115235 to Sawada ("Sawada").

Claims 19-22, 29-32 and 39-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawada in view of U.S. Patent No. 6,376,797 to Piwczyk et al. ("Piwczyk").

Claims 16 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawada in view of U.S. Patent No. 4,899,126 to Yamada ("Yamada").

Claims 23, 33 and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawada in view of U.S. Patent Application Publication No. 2003/0010275 to Radojevic et al. ("Radojevic") and Piwczyk.

Summary of the Response to the Office Action

Applicants have canceled claims 13-55 without prejudice or disclaimer.

Applicants have added new claims 56-111.

Claims 56-111 are pending.

All Claims Define Allowable Subject Matter

Applicants have canceled claims 13-55, rendering the above rejections moot. Applicants have added new claims 56-111. Applicants submit that new claims 56-111 are readable on Species I as identified in the Office Action dated March 20, 2008, and as elected in the Response filed on May 20, 2008. Examination of new claims 56-111 is respectfully requested. Applicants

submit that new claims 56-111 are patentable over Sawada, Piwczyk, Yamada and Radojevic for at least the following reasons.

As a conventional method, Sawada discloses, for example, forming a groove on a front face of a substrate along a line with a blade and cutting the substrate by grinding a rear face of the substrate along the line. See Fig. 12 of Sawada.

In contrast, Applicants' invention differs from Sawada in at least the following two ways:

Firstly, Applicants' invention relates to forming a modified region within the substrate without forming a groove due to melting on a laser light incident face of a substrate by irradiating the substrate with laser light while positioning a light-converging point within the substrate, and causing the modified region to form a starting point region for cutting the substrate inside the substrate by a predetermined distance from the laser light incident face of the substrate.

Secondly, Applicants' invention relates to grinding the substrate and cutting the substrate when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and rear face of the substrate.

Sawada also discloses forming a groove on the substrate along a line by irradiating the substrate with laser light. See Figs. 6 and 14 of Sawada. However, when grinding a substrate wherein a groove is formed, the same amount of gap is generated as the groove, which raises the following problems:

Problem 1: Since the same amount of gap as the groove is generated, the number of chips which are separated from one substrate is decreased.

Problem 2: Since the same amount of gap as the groove is generated, chipping and cracking due to grinding occurs on the substrate.

Problem 3: Since the same amount of gap as the groove is generated, a chip which is obtained by dividing the substrate is contaminated with grinding dust.

Problem 4: Since the same amount of gap as the grove is generated, chip-off will be scattered during the grinding of the substrate.

In contrast, the present invention does not form a groove (even if cracking occurs, the cutting surfaces of the substrate are in close contact with each other), and therefore, the following beneficial effects are attained:

Effect 1: The number of chips separated from one substrate can be increased by narrowing the gap between the functional devices adjacent to each other.

Effect 2: Even if a substrate is cracked, the substrate can be prevented from chipping and cracking due to grinding, because the cutting surfaces of the substrate are in close contact with each other.

Effect 3: Even if a substrate is cracked, the grinding dust due to grinding can be prevented from entering the fractures and also the chips obtained by dividing the substrate can be kept from being contaminated with the grinding dust, because the cutting surfaces of the substrate are in close contact with each other.

Effect 4: The close contact of the cutting surfaces in the substrate is effective in reducing the chip-off of the chips caused by the surface grinding in comparison with the case where the chips are separated from each other.

Applicants respectfully submit that Sawada, Piwczyk, Yamada and Radojevic do not disclose at least the features of forming a modified region within the substrate without forming a groove due to melting on a laser light incident face of a substrate by irradiating the substrate with laser light while positioning a light-converging point within the substrate, and causing the modified region to form a starting point region for cutting the substrate inside the substrate by a predetermined distance from the laser light incident face of the substrate, and grinding the substrate and cutting the substrate when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and rear face of the substrate, as recited in each of the new independent claims.

Moreover, Applicants respectfully submit that Sawada, Piwczyk, Yamada and Radojevic do not even recognize the beneficial effects of having the cut surfaces of the semiconductor substrate cut by the fractures being in close contact with each other at a point in time when grinding is finished.

CONCLUSION

In view of the foregoing, Applicants submit that the pending claims are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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